



Certificate of Analysis

Mouse Interleukin-28B/Interferon Lambda 3

Catalog No: 12820-1

Lot No: 7159

Expiration: December 13, 2020

Size: 25 µg/vial

Description: Recombinant Mouse Interleukin-28B/Interferon Lambda 3

Source: DNA sequence encoding the mature mouse IL-28B/IFN-λ3 (Asp 20 - Val 193) (Kotenko, S.V. *et al.*, 2003, *Nat. Immunol.* 4(1):69 - 77) was expressed in *E. coli*.

Buffer: Phosphate-buffered saline (PBS) containing 50 µg of BSA per 1 µg of cytokine

Reconstitution: It is recommended that sterile PBS containing at least 0.1% human serum albumin or bovine serum albumin be added to the vial to prepare a stock solution of no less than 10 µg/ml.

Endotoxin: < 1 EU/µg

Molecular Weight: The 175 amino acid residue methionyl form of recombinant mouse IL-28B has a predicted molecular mass of approximately 19.7 kDa.

Purity: > 95%

Synonyms: Mu-IL-28B; Mu-IFN-λ3

Accession #: NP_796370

Assay Used to Measure Bioactivity: Human HepG2 cells infected with encephalomyocarditis virus (Sheppard, P. *et al.*, 2003, *Nature Immunol.* 4:63). The ED₅₀ for this effect is typically 7.5 - 37.5 ng/ml.

Product Information: Human IL-28A, IL-28B, and IL-29, also named interferon-λ2 (IFN-λ2), IFN-λ3, and IFN-λ1, respectively, are newly identified class II cytokine receptor ligands that are distantly related to members of the IL-10 family (11- 13% aa sequence identity) and type I IFN family (15 - 19% aa sequence identity).¹⁻³ The genes encoding these three cytokines are localized to chromosome 19 and each is composed of multiple exons. The exon organization of these genes is also found in the IL-10 family genes but is distinct from the type I IFNs, which are encoded within a single exon. The expression of IL-28A, B, and IL-29 is induced by virus infection or double-stranded RNA. All three cytokines exert bioactivities that overlap those of type I IFNs, including antiviral activity and up-regulation of MHC class I antigen expression. The three proteins signal through the same heterodimeric receptor complex that is composed of the IL-10 receptor β (IL-10 Rβ) and a novel IL-28 receptor α (IL-28 Rα, also known as IFN-λR1). Ligand binding to the receptor complex induces Jak kinase activation and STAT1 and STAT2 tyrosine phosphorylation. The phosphorylated STAT1 and STAT2 complex with IFN-regulatory factor 9 (IRF-9) to form the IFN-stimulated regulatory factor 3 (ISGF-3) transcription factor complex that is translocated to the nucleus. ISGF-3 binds to the IFN-stimulated response element (ISRE) present in the regulatory regions of the target genes. Mouse IL-28B cDNA encodes a 193 amino acid (aa) residue precursor protein with a putative 15 aa signal peptide. It shares 61%, 62% and 52% aa sequence identity with human IL-28A, human IL-28B and human IL-29, respectively.

Shipping Conditions: Wet Ice

Physical State of Product During Shipping: Lyophilized

Storage Conditions/Comments: Upon receipt, the product should be kept at -20 to -70°C or below for retention of full activity. Upon reconstitution, this cytokine can be stored under sterile conditions at 2 to 8°C for one month or at -20 to -70°C in a manual defrost freezer for three months without detectable loss of activity. Avoid repeated freeze-thaw cycles. For more information on protein handling, visit our Resource Library at www.pblsaysci.com.

References:

1. Vilcek, J. 2003, *Nature Immunol.* 4:8-9.
2. Sheppard, P., *et al.* 2003, *Nature Immunol.* 4:63-68.
3. Kotenko, S.V., *et al.* 2003, *Nature Immunol.* 4:69-77.



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Authorization

Released by: _____

A handwritten signature in black ink, appearing to be 'L. Z. J.', written over a horizontal line.

Date: December 16, 2019

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Rev. 02

